

Gas Stoichiometry Problems (Reaction Review Too) (Remember Water Vapor Pressure)

1. What volume (mL) of gas can be produced by the complete reaction of 3.82 g of calcium sulfite with excess HCl (aq), when the final pressure of the dry gas in the reaction vessel is 827 torr at 44.0 °C?
2. Automobile air bags use the decomposition of sodium azide (NaN_3) as their source of gas for rapid inflation. What mass (g) of NaN_3 is required to provide 40.0 L of gas at 25.0 °C and 763 torr?
3. What volume (L) of gas at STP is produced by the complete reaction of 7.5 g of water and 12.5 g of magnesium nitride? What is the pH of the resulting solution?
4. If 2.00 g of copper metal is exposed to 25.0 mL of 0.500 *M* nitric acid, what volume of dry gas is produced at 20.0°C and 1.31 atm? What is the color of the gas produced?
5. What is the total pressure in a 1.500 L flask after 10.0 g solid ammonium nitrate is heated to 400.°C? Assume the compound was initially in a vacuum, and that temperature does not change throughout the procedure.